

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Examiner: Jeanette E. Chapman

Confirmation No. 3343

Group Art Unit: 3633

MODULAR PREFABRICATED
HOUSE

In re application of:

PAOLO TIRAMANI

Serial No.: 10/653,523

Filed: September 2, 2003

Attorney Docket No. 286357-00004-1

APPELLANT'S BRIEF ON APPEAL

July 14, 2009

Commissioner for Patents
MAIL STOP APPEAL BRIEF - PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is an Appeal from the decision of the Examiner, dated December 24, 2008, rejecting Claims 1, 2, 4-11 and 13-19 of the above-identified application. The claims are set forth in Appendix 1, which is attached hereto.

Real Party In Interest

The real party in interest is 500 Group Inc. An assignment from the inventor to 500 Group Inc. was recorded on August 26, 2004 and is recorded at Reel/Frame 015723/0678.

Related Appeals and Interferences

There are no other appeals or interferences known to Appellant or to Appellant's legal representative which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

Status of the Claims

Claims 1, 2, 4-11, and 13-19 are pending in the application.

Claims 3 and 12 are cancelled.

Claims 13-15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-2, 4, 9-11, and 17-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203).

Claims 5-6 and 14-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Derman* (U.S. Patent No. 2,070,924).

Claims 7-8, 16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Prigmore et al.* (U.S. Patent No. 4,779,514).

The claims on appeal are Claims 13-15 which are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite; Claims 1-2, 4, 9-11, and 17-18 which are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203); Claims 5-6 and 14-15 which are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Derman* (U.S. Patent No. 2,070,924) and Claims 7-8, 16 and 19 which are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Prigmore et al.* (U.S. Patent No. 4,779,514).

Status of the Amendments

There are currently no amendments to the pending claims. The claims as they stand on Appeal are contained in the Appendix 1 to this Brief.

Summary of the Claimed Subject Matter

1. (Previously presented) A prefabricated house (3, ¶ 0057) comprising:

two or more modules (10, ¶ 0057), each module (10, ¶ 0057) having a frame, said frame having a plurality of studs (21, 21A, ¶ 0064);

said module frames (22, ¶ 0064) having one or more multiframe openings (20, ¶ 0058);

each said multiframe opening (20, ¶ 0058) incorporating two studs (21, 21A, ¶ 0064) from said module frame plurality of studs (21, 21A, ¶ 0064) and having a plurality of medial cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064); and

said two or more modules (10, ¶ 0057) structured to be joined at one of said one or more multi-frame openings (20, ¶ 0058).

2. (Previously presented) The prefabricated house (3, ¶ 0057) of claim 1 wherein: said multi-frame openings (20, ¶ 0058) are enclosed within a covering over said module frame (22, ¶ 0064); and

said multi-frame openings (20, ¶ 0058) are structured to be converted into openings.

4. (Previously Presented) The prefabricated house (3, ¶ 0057) of claim 1 wherein each cross-member in said plurality of cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064) is coupled to said studs (21, 21A, ¶ 0064) in a manner sufficient to support any additional components selected from the group including: doors, windows, fireplaces or dormers.

5. (Original) The prefabricated house (3, ¶ 0057) of claim 4 wherein each cross-member (23, 24, 25, 26, 27, 28, 29, ¶ 0064) in said plurality of cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064) is removably coupled to said studs (21, 21A, ¶ 0064).

6. (Original) The prefabricated house (3, ¶ 0057) of claim 3 wherein each cross-member in said plurality of cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064) is removably coupled to said studs (21, 21A, ¶ 0064).

7. (Original) The prefabricated house (3, ¶ 0057) of claim 1 wherein said modules (10, ¶ 0057) include one or more foldable panels (18, ¶ 0059).

8. (Original) The prefabricated house (3, ¶ 0057) of claim 7 wherein:
at least one of said two or more modules (10, ¶ 0057) is a core module (11, ¶ 0059)
having a fixed space portion (12, ¶ 0059) and a passive space portion (14, ¶ 0059);
said fixed space portion (12, ¶ 0059) having non-foldable walls;
said passive space portion (14, ¶ 0059) having said foldable panels (18, ¶ 0059);
said foldable panels (18, ¶ 0059) movable from a first, closed position to second open position;
and
wherein said core module (11, ¶ 0059) has dimensions of less than about 66 feet, by 10
feet, by 12 feet when said foldable panels (18, ¶ 0059) are in said first position.

9. (Original) The prefabricated house (3, ¶ 0057) of claim 8 wherein said multi-
frame openings (20, ¶ 0059) are structured to be converted into an opening selected from the
group including: doors, windows, fireplaces or dormers.

10. (Original) The prefabricated house (3, ¶ 0057) of claim 8 wherein said modules
(10, ¶ 0057) may be joined at said multi-frame openings (20, ¶ 0059) with said modules (10, ¶
0057) disposed in more than one configuration relative to each other.

11. (Previously presented) The prefabricated house (3, ¶ 0057) of claim 10 wherein:
said multi-frame openings (20, ¶ 0059) are enclosed within a covering over said module
frame (22, ¶ 0064); and
said multi-frame openings (20, ¶ 0059) are structured to be converted into openings.

13. (Previously presented) The prefabricated house (3, ¶ 0057) of claim 11 wherein
each cross-member in said plurality of cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064) is
coupled to said studs (21, 21A, ¶ 0064) in a manner sufficient to support any additional
components selected from the group including: doors, windows, fireplaces or dormers.

14. (Original) The prefabricated house (3, ¶ 0057) of claim 13 wherein each cross-
member in said plurality of cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064) is removably
coupled to said studs (21, 21A, ¶ 0064).

15. (Previously presented) The prefabricated house (3, ¶ 0057) of claim 11 wherein each cross-member in said plurality of cross-members (23, 24, 25, 26, 27, 28, 29, ¶ 0064) is removably coupled to said studs (21, 21A, ¶ 0064).

16. (Original) The prefabricated house (3, ¶ 0057) of claim 10 wherein each said module (10, ¶ 0057) includes substantially finished trim.

17. (Original) The prefabricated house (3, ¶ 0057) of claim 1 wherein said modules may be joined at said multi-frame openings (20, ¶ 0058) with said modules (10, ¶ 0057) disposed in more than one configuration relative to each other.

18. (Original) The prefabricated house (3, ¶ 0057) of claim 1 wherein each said module (10, ¶ 0057) includes substantially finished trim.

19. (Original) The prefabricated house (3, ¶ 0057) of claim 1 wherein:
at least one of said two or more modules (10, ¶ 0057) is a core module having a fixed space portion (12, ¶ 0059) and a passive space portion (14, ¶ 0059);
said passive space portion (14, ¶ 0059) structured to move from a first, closed position to second open position; and
wherein said core module (11, ¶ 0059) has dimensions of less than about 66 feet, by 10 feet, by 12 feet when said passive space portion (14, ¶ 0059) is in said first position.

Grounds of Rejection to be Reviewed on Appeal

Claims 13-15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-2, 4, 9-11, and 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203).

Claims 5-6 and 14-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Derman* (U.S. Patent No. 2,070,924).

Claims 7-8, 16 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Prigmore et al.* (U.S. Patent No. 4,779,514).

Argument

Claims 13-15; Rejected under 35 U.S.C. § 112, second paragraph

Claims 13-15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 13-15 originally depended from Claim 12. Claim 12 has since been canceled. On February 24, 2009 Appellant filed an response after final that amended, *inter alia*, the dependencies of Claims 13 and 15 thereby removing this issue from a potential appeal. The Examiner refused to enter this amendment. The Examiner did not provide a reason for declining entry of the amendment as required by MPEP § 714.13. Appellant notes that, while the general rule is that an amendment should not be entered in part, MPEP § 714.20(C) provides that an amendment curing a formal defect may be entered in part. Thus, to the extent the Examiner was disinclined to enter the entire amendment, the Examiner could have entered the portion of the February 24, 2009 amendment curing this issue. In any event, Appellant believes this issue may be cured after the decision on this Appeal.

Claims 1-2, 4, 9-11, and 17-18; Rejected under 35 U.S.C. § 103(a)

Claims 1-2, 4, 9-11, and 17-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view *Donahue* (U.S. Patent No. 2,644,203).

Before discussing the cited art, Appellant notes that this appeal is based in part on the Appellant's belief that the Examiner has applied an improper and/or an overly broad interpretation to the words recited in the claims. As such, Appellant initially notes that, while the claims must be given their broadest reasonable interpretation, such an interpretation must be reasonable, "in light of the specification as it would be interpreted by *one of ordinary skill in the art.*" *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827 (Fed. Cir. 2004) (emphasis added). Further, as stated in MPEP §2111, "the rules of the PTO require that application claims must 'conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent

basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description” (quoting the Federal Circuit’s *en banc* decision in *Phillips v. AWH Corp.*, 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) and 37 CFR 1.75(d)(1)).

Reference to “one skilled in the art” when determining the broadest reasonable interpretation is notable as general usage dictionaries do not always provide the definition used by skilled persons. That is, as set forth in *Irdeto Access, Inc. v. EchoStar Satellite Corp.*, 383 F.3d 1295, 1300, 72 USPQ2d 1678 (Fed. Cir. 2004), “where evidence such as expert testimony or technical dictionaries demonstrates that artisans would attach a special meaning to a claim term ... ‘general-usage dictionaries are rendered irrelevant with respect to that term ...’” (citing *Vanderlande Indus. Netherland BV v. Int’l Trade Comm’n*, 366 F.3d 1311 (Fed. Cir. 2004)). This holding comports with the holding in *Dow Chemical Co. v. Sumitomo Chemical Co., LTD*, 257 F.3d 1364, 1372 (Fed. Cir. 2001), which stated that, “[w]e have previously cautioned against the use of non-scientific dictionaries, ‘lest dictionary definitions be converted into technical terms of art having legal, not linguistic significance.’” (Citing *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1478, 45 USPQ2d 1429, 1433 (Fed. Cir. 1998)). The holding of such cases is very relevant to the discussion set forth below as, despite the fact that the Appellant has submitted evidence both from a neutral expert and definitions from technical dictionaries, the Examiner has consistently applied an overly broad interpretation to the words recited in the claims.

Kump discloses a modular housing system comprised of an external, structural frame assembly and a plurality of space modules that are supported by the structural frame assembly. The *Kump* disclosure was an attempt to overcome the “archaic” (Col. 1, line 19) building techniques of the 1970s. While history has shown that the “archaic” building techniques have hung on for nearly four decades after *Kump*, this does not mean that *Kump*’s disclosure was not, and still is not, a radical departure from known construction techniques. As *Kump* is a radical departure, it follows that the structures disclosed in *Kump* are substantially dissimilar from structures created by other construction techniques, including those techniques still in use today. Thus, comparing *Kump* to the present disclosure is, essentially, comparing apples to oranges.

It is noted that the *Kump* structural frame is designed to support the various modules as well as various other housing elements such as pipes and electrical conduits. See Col. 5, line 65 – Col. 6, line 21. The structural frame also supports the weight of the building and any lateral

forces, e.g. wind load, applied thereto. *See*, Col. 5, lines 5-10. Thus, in this configuration, the modules are not structured to support the weight of the building, resist lateral loads, etc. Accordingly, each module must only support its own weight and the weight of any internal loads. Thus, *Kump* discloses that each module:

... is a hollow cube-shaped enclosure having rounded outer walls. The walls may be constructed of expanded material, such as polyethylene or polyurethane with a fiberglass interior and exterior skin. The **composite assembly has structural strength** and also provides thermal and sound insulation.

Col. 4, line 66 – Col. 5, line 3 (emphasis added). Thus, the “module frame,” as opposed to the “structural frame,” disclosed in *Kump* is the shell/walls that form the module. *Kump* further discloses that within the module frame there are a plurality of openings. The openings may be used as doors, windows, etc. and, as such, the frames for the openings may be generally identified as a door frame, window frame, etc. Opening frames do not support the module or provide any other type of structural support. The opening frames are used to protect the edges of the openings and act as cable trays to interconnect the modules. Thus, *Kump* discloses three types of frames; (1) a structural frame, (2) a module frame, and (3) opening frames.

As set forth in the claims and the specification of the present application, the prefabricated house includes a plurality of modules each having a “frame.” Thus, as used in this application a “frame” means the frame of the module. Moreover, given the description of studs and cross-members, it would be clear to one skilled in the art that the module frame of the present application is a traditional frame. That is, the module frame is that structure that supports the walls and any upper floors. Further, while not stated specifically in the present specification, it would be understood by those skilled in the art that the module frame is also the structure that resists lateral loads.

Appellant notes that in secondary sources specific to the construction arts, a “frame” is defined as, “[f]rame: A structural framing system consisting of members joined together with moment or rigid connections which maintain their original angular relationship under load without the need for bracing in its plane.” *The Handcock Joist, Joist And Structural Glossary* (Evidence Appendix, Exhibit A), and “[t]he skeleton of a building; that is, the rough structure of a building, including interior and exterior walls, floor, roof, and ceilings.” Contractor Glossary of Terms (Evidence Appendix, Exhibit B). In other secondary sources not specific to the

construction arts, a “frame” is defined as “... a structure that surrounds or encloses a particular space, · a picture frame, · a door frame...” Encarta (Evidence Appendix, Exhibit C); and, “the underlying constructional system or structure that gives shape or strength (as to a building)” Merriam-Webster Online Dictionary (Evidence Appendix, Exhibit D); and “[a] structure that gives shape or support: the frame of a house,” The American Heritage® Dictionary of the English Language: Fourth Edition, 2000 (Evidence Appendix, Exhibit E). Thus, in the present application, the frame is that system/structure that encloses the module or gives shape and support to the module. Conversely, in *Kump* that system/structure that encloses an “opening,” such as a door, would be described as a “door frame.”

Thus, of the various frames disclosed in *Kump*, the frames that serve a purpose similar to the module frame recited in the present claims are the structural frame and the module frame. The Examiner has, however, based the present rejection upon the door frame. As stated above, this is, essentially, comparing apples to oranges, and is improper. Accordingly, for this reason alone, *Kump* should be withdrawn as a relevant reference.

Appellant further notes that of the various “frames” disclosed in *Kump*, the most relevant “frame” is the structural frame. This is the frame disclosed in *Kump* that serves the same purpose as the frame disclosed in the present application. The *Kump* structural frame, however, consists of “posts” (vertical members) and beams (horizontal members). As with the rejection based upon *Dattner* (U.S. Patent No. 3,720,022) in the Office Action, dated June 24, 2008, which also disclosed a structure comprised solely of posts and beams (and which the Examiner withdrew as a reference based on this distinction), the *Kump* structural frame does not include “studs” as recited in the present claims.

That is, the *Kump* structural frame is, essentially, the same as *Dattner* which disclosed a “building construction in which a basic unit of twelve elements is fabricated into a rectangular parallelepiped to define a structurally rigid module requiring no additional structural members.” *Dattner* Abstract, *see also Kump* Figures 6 and 8. Such a module is defined by **only** four lower horizontal members, four vertical members, and four upper horizontal members – and no additional structural members. It is noted that each of the four vertical members is located at a corner. That is, no vertical member in a module is disposed generally between two other vertical members.

The relevance of the lack of vertical members other than the corner member is related to the definitions of “stud” and “post.” In this application, the multiframe openings are recited as incorporating two “studs.” More specifically, this application is directed to the construction of homes, and more specifically, prefabricated homes. Thus, the terminology and the meaning of the words used in the claims must encompass the meaning that a builder of homes would apply to those words. For example, Robert Delorenzo, a party with no interest in this application, is a home builder with over 20 years of experience. As set forth in the Affidavit of Robert Delorenzo (Evidence Appendix, Exhibit F) (“Delorenzo Affidavit”), a frame having “studs” includes a top plate, a bottom plate, and a plurality of studs (vertical members). Such “studs” are typically placed either 16 inches or 24 inches apart. Conversely, a “post” is a load-bearing vertical member, typically located at the corner of a wall. Unlike “studs,” which are located relatively close to each other, additional “posts” are typically spaced more than two feet apart from a corner post. These definitions comport with other sources that are directed to those skilled in the art of home construction. See, Guertin and Arnold, *Fine Homebuilding*, “Anatomy of a Stud-Framed Wall,” at <http://www.taunton.com/finehomebuilding/pages/h00023.asp>, (Evidence Appendix, Exhibit G), *Ask This Old House*, Stud Spacing, <http://www.thisoldhouse.com> (Evidence Appendix, Exhibit H), *Ching, Building Construction Illustrated* (3rd Ed.), 2001, page 5.03, (Evidence Appendix, Exhibit I), and, *The BOCA National Building Code*, 1999, (stating that, “Studs in nonloadbearing walls and partitions shall not be spaced more than 48 inches....”) (Evidence Appendix, Exhibit J).

Thus, in this application, Appellant has produced expert testimony and technical dictionaries/references discussing the difference between a “stud” and a “post.” “Posts” are the vertical members disposed at the corners of frames and “studs” are the vertical members disposed between the posts and which are spaced about 16 inches or 24 inches apart. As such, a general dictionary definition, such as a definitions upon which the Examiner relies found in the *Random House College Dictionary*, has been “rendered irrelevant with respect to that term.” Further, this distinction is noted in the attached definition of the word “post” from the dictionary *Encarta* (Evidence Appendix, Exhibit K). That is, *Encarta* notes a general definition of a “post” as “upright pole: a pole of wood or metal fixed in the ground in an upright position, serving as a support, marker, or place for attaching things.” This definition is generally consistent with the definition provided by the Examiner. However, *Encarta* further notes that in the field of

“construction” the word “post” has a more specific definition, “construction upright frame part: a vertical piece in a building frame that supports a beam.” The latter definition, *i.e.*, the one relating to construction, just as the present application relates to construction, is consistent with the definition provided by Robert Delorenzo.

Kump, like *Dattner*, discloses a building construction in which a basic unit of twelve elements is fabricated into a rectangular parallelepiped to define a structurally rigid module requiring no additional structural members. That is, the structural frame is defined by **only** four lower horizontal members, four vertical members, and four upper horizontal members – and no additional structural members. It is noted that each of the four vertical members is located at a corner. That is, no vertical member in a module is disposed generally between two other vertical members. As noted in the Delorenzo Affidavit, “[b]ecause the vertical members of the chassis are load-bearing members, the vertical members would be identified as ‘posts’ by those skilled in the art. Further, because the patent does not disclose additional vertical supports, whether load-bearing or not, between the corner posts, this patent fails to disclose any ‘studs’ as that word is understood in the art.” It is further noted that, as shown in Figure 4, the modules are “room sized” although no specific dimensions are stated. Therefore, it can reasonably be assumed that the corners, and therefore the vertical members, of the structural frame surrounding each module are more than 16 inches or 24 inches apart. As such, and in view of the definitions provided above, each of the vertical members disclosed in *Kump* is a “post” and not a “stud.” Thus, the structural frame of *Kump* cannot disclose the elements recited in the present claims as the claims recite “studs” but not “posts.”

The next most relevant frame of *Kump* is the modular frame. This is, ostensibly, relevant in that the module of the present application has similarities with the *Kump* module. For example, both modules define enclosed spaces that may be used as living space and may be otherwise occupied with people, furniture, etc. Of course, while the modules of *Kump* and the present application have a similar function, the modular frames are completely different. That is, as noted above, the present module frame is a traditional assembly of studs, cross-members, etc. while the *Kump* module is a unibody, composite structure having no studs, headers, etc. Accordingly, this *Kump* modular frame is also not relevant to the present application.

The final *Kump* frame is the opening frame cited by the Examiner. As set forth above, the opening frame does not provide any structural support and does not act as a frame for the

“module.” As such, Appellant disagrees with the Examiner that *Kump* discloses a “module having a frame 42.” December 24, 2008 Final Office Action at 2. Appellant believes a more accurate description would be that *Kump* discloses a “module having an opening frame 42.” Such a disclosure could be relevant if the present application recited, “a module having a door frame,” but, as the frame recited in the present claims is the module frame, Appellant believes that *Kump* fails to disclose the elements as recited in the present claims.

Finally, it is noted that *Kump* states the module may be made by conventional methods of construction including framing members attached to inner and outer walls. As set forth in MPEP § 2121.01, however, “[t]he disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation.” *Id.*, citing *Elan Pharm., Inc. v. Mayo Found. For Med. Educ. & Research*, 346 F.3d 1051, 1054, 68 USPQ2d 1373, 1376 (Fed. Cir. 2003). Here, *Kump* discloses that the overall structure includes an external structural frame and a unibody modular frame. As one skilled in the art cannot combine a traditional frame assembly with either an external structural frame or a unibody modular frame “without undue experimentation,” this disclosure is non-enabling with regard to such traditional framing methods. Alternately, if the modular frame is not a structural frame, there would not be a need for traditional posts, studs, and beams. Thus, it is unclear how such framing members would be attached to the inner and outer walls, the spacing of the frame members, etc. As such, *Kump* is non-enabling with regard to such traditional framing methods.

Donahue discloses a modular add-on bathroom for “a building, such as a rural residence, not previously having a bathroom.” Col. 1, lines 4-5. That is, the modular room is structured to be attached to a preexisting home and, more specifically, to a home having traditional construction. The modular portion defines a room having a floor, three complete walls, one partial wall, a ceiling/roof and various bathroom fixtures with connective hardware. The three complete walls define the outer walls of the modular addition. The partial wall consists of an inner sheet disposed over a plurality of studs having a head plate and a shoe plate (top and bottom horizontal members) and may include intermediate horizontal brace members. Col. 5, lines 15-25. The partial wall includes an opening and a door disposed therein and coupled to the partial wall. The side of the module with the partial wall is attached to the house. The outer walls include a frame having a plurality of studs with a header plate and a sole plate sandwiched

between an inner panel and an outer panel. The outer panels could include a feature such as a window. Thus, *Donahue* discloses a modular unit having one predefined opening, the door, and possibly a predefined window. “Predefined” meaning having to be located in a single location within the panel.

Appellant disagrees with the Examiner that either *Kump* or *Donahue* discloses a structure having two, or more, modules wherein each module has a multiframe opening and wherein each multiframe opening incorporates two studs from the frame plurality of studs and having a plurality of medial cross-members. *Kump*, as noted above, does not disclose a module frame as that phrase is used in the present application and as would be understood by those skilled in the art. Further, as *Kump* fails to disclose a module frame, it is impossible for *Kump* to disclose either “studs” and/or “a plurality of medial cross-members” between the studs. Thus, as *Kump* fails to disclose any “studs” and “a plurality of medial cross-members” between studs, it is impossible for *Kump* to disclose a “multiframe opening” as a “multiframe opening” is defined in this application.

Donahue, while disclosing studs, fails to disclose a “plurality of medial cross-members” disposed between two such studs. *Donahue* discloses a single horizontal member, “for example, brace members serving as a means to mount an outlet ...,” however, such a traditional use of a brace is not the same as a “multiframe opening” as defined in this application. Further, the *Donahue* device is structured to be coupled to a traditional house, e.g. a rural home not having a bathroom. As such, it is impossible for *Donahue* to disclose “two or more modules” as a traditional rural home is not a “module.”

As neither reference discloses a plurality of medial cross-members between studs, no combination of these references can teach or suggest the invention recited in Claim 1 of the present application. As such, Claim 1, and all claims dependent therefrom, should be allowable. Further, as discussed below, these two references cannot be combined as suggested without destroying the primary reference, *Kump*.

With regard to the determination of obviousness under 35 U.S.C. § 103, the Supreme Court has stated that:

Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, *it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements*

in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely on building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

KSR International Co. v. Teleflex Inc., ___ U.S. ___, ___, 2007 WL 1237837 (2007), (Slip Opinion at 14-15) (emphasis added). In addition, the Supreme Court also noted that:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, *this analysis should be made explicit.* See *In re Kahn*, 441 F.3d 977, 988 (Fed Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, *there must be some articulated reasoning with some rational underpinnings to support the legal conclusion of obviousness*”).

Id., at ___ (Slip Opinion at 14) (emphasis added). It is noted that the Supreme Court included an extended discussion reciting the nature of the inventions disclosed in the prior art and then several paragraphs identifying the rationale and reasons that the cited art could be combined and why one skilled in the art would make such a combination. *Id.*, at ___ (Slip Opinion at 3-6, 20-22).

It is further noted that the requirement for an “articulated reasoning” is not a minor point in *KSR Int’l*. The requirement for an “articulated reasoning,” or a similar statement, is set forth in no less than three MPEP sections relating to obviousness rejections. See MPEP §§ 2141, 2142, and 2143. More specifically, MPEP § 2141 states, “Office personnel **must** therefore ensure that the written record includes findings of fact concerning the state of the art and the teachings of the references applied. In certain circumstances, it may also be important to include **explicit findings** as to how a person of ordinary skill would have understood prior art teachings, or what a person of ordinary skill would have known or could have done. **Factual findings** made by Office personnel **are the necessary** underpinnings to establish obviousness ” (emphasis added). MPEP § 2142 notes that, “[t]he Federal Circuit has stated that ‘**rejections on obviousness cannot be sustained with mere conclusory statements**; instead, there must be some **articulated reasoning** with some rational underpinning to support the legal conclusion of obviousness.’ *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)”

(emphasis added). MPEP § 2143 states, “The **key** to supporting any rejection under 35 U.S.C. 103 is the **clear articulation** of the reason(s) why the claimed invention would have been obvious” (emphasis added).

With regard to combining known elements of an invention, the Supreme Court further stated that, “[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *Id.*, at ____ (Slip Opinion at 14). This holding comports with *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) which held that, although some of the cited references, individually, may have some of the claimed inventions' features, “one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention.” *Id.* at 1075. Instead, to reach the proper conclusion under §103:

The decision maker must step backward in time and into the shoes worn by [a person having ordinary skill in the art] when the invention was unknown and just before it was made. In light of *all* the evidence, the decision maker must then determine whether...the claimed invention as a whole would have been obvious at *that time to that person*.

Id. at 1073-74 (emphasis added).

The Examiner has not properly supported the rejection under 35 U.S.C. § 103(a) and under *KSR International*. In the final Office Action, the Examiner has merely identified a list of elements recited in the present application and located various references wherein similar elements are disclosed. The Examiner has not “made explicit” the reason such references would, or could, be combined as suggested. That is on pages 2-3 of the December 24, 2008 Final Office Action, the Examiner recites a number of elements allegedly (see above) disclosed in the two references. The Examiner then states, “[i]n view of the above, it would have been obvious to include the modules including studs and incorporating studs from the plurality of studs in order to reinforce and strengthen the modules.” This single sentence is the only explanation for the proposed combination.

Appellant asserts that the single sentence is the exact type of conclusory sentence that *KSR International* and MPEP § 2142 state cannot, by itself, support a rejection under 35 U.S.C. § 103(a). By providing only a single sentence, the Examiner has failed to provide explicit findings (MPEP § 2141) and failed to provide the “key” support for a finding of obviousness

(MPEP § 2143). Accordingly, this rejection is improper and the rejection of Claims 1, 2, and 17-18 under 35 U.S.C. § 103(a) should be withdrawn.

Moreover, in this instance the cited art actually teaches away from each other. *See* MPEP §§ 2141.02, 2143.01 (V), (VI) and 2146 (D)(2). As set forth in MPEP §§ 2141.02, a “prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).” Further, “If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).” *See*, MPEP 2143.01(V). Finally, “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).” *See*, MPEP 2143.01(VI).

With respect to the rule set forth in MPEP § 2143.01 (VI), the “principle of operation” for the *Kump* device is that the modules are constructed from a composite assembly of polyethylene or polyurethane with a fiberglass interior and exterior skin. Moreover, this composite shell is not structured to support the weight of the building, lateral loads, etc. Such loads are supported by the *Kump* structural frame. Thus, such a composite module is entirely inconsistent with the traditional frame construction of *Donahue*. That is, the purpose of the *Kump* module wall, *i.e.* module frame, is to provide a unibody frame without internal members providing structural support. The proposed combination would require the incorporation of the *Donahue* studs into a unibody frame. Such a combination is either impossible or illogical. That is, as one skilled in the art would be aware, a unibody frame relies upon the even distribution of stress throughout the frame. Such an even distribution typically requires a smooth wall without any sharp edges, as disclosed in *Kump*. The incorporation of studs into a unibody frame would create sharp edges that would actually weaken the unibody frame. Thus, looking at the whole of *Kump*, *i.e.*, a structural frame and a composite unibody module frame, Appellant believes that one skilled in the art would not attempt to combine these references as the underlying technology is too different. Moreover, given that *Kump* includes a structural frame that is sufficient to support the modular frame, there would be no reason to include additional studs, as in the *Donahue* frame.

That is, studs would not add any structural benefit, but would add to the weight and cost of the overall structure. Moreover, incorporation of studs into the *Kump* structural frame would likely interfere with installation of the *Kump* module within the *Kump* structural frame. That is, if the *Kump* structural frame had studs, one would not be able to move the *Kump* module into position within the *Kump* structural frame. As such, when the references are considered as a whole, there is no reason that one skilled in the art would combine these references.

Further, the *Donahue* device is structured to be coupled to traditional housing, e.g. a house having a foundation. That is, a stated object of *Donahue* is to provide a "... structure for attaching ... to an old building." The *Kump* structure is not an "old building," or in the words of *Kump*, a building constructed by "archaic" building techniques, The *Kump* structure incorporates many features, e.g. an external structural frame, not found in "old buildings." As such, it is impossible to combine these references without destroying the object of the *Donahue* reference. That is, *Donahue* when combined with *Kump* would be "unsatisfactory for its intended purpose."

Accordingly, the proposed combination is not permitted and the rejection of Claims 1, 2, 4, 9-11, and 17-18 under 35 U.S.C. § 103(a) should be reversed.

Claims 5-6 and 14-15; Rejected under 35 U.S.C. § 103(a)

Claims 5-6 and 14-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Derman* (U.S. Patent No. 2,070,924). The deficiencies of *Kump* and *Donahue*, and the reasons they cannot be combined, are noted above. *Derman* discloses a wardrobe or cabinet. There are at least three problems with the use of *Derman* as prior art: (1) *Derman* is non-analogous art; (2) the *Derman* reference fails to disclose the elements cited by the Examiner; and (3) the rejection is not properly supported.

With regard to the first point, Appellant refers to *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In *Oetiker*, the Appellant claimed an improvement in a hose clamp which differed from the prior art in the presence of a preassembly "hook" which maintained the preassembly condition of the clamp and disengaged automatically when the clamp was tightened. The Board relied upon a reference which disclosed a hook-and-eye fastener for use in garments, reasoning that all hooking problems are analogous. The court held the reference was not within the field of Appellant's endeavor and was not reasonably pertinent to

the particular problem with which the inventor was concerned because it had not been shown that a person of ordinary skill, seeking to solve a problem of fastening a hose clamp, would reasonably be expected or motivated to look to fasteners for garments.

This application relates to prefabricated houses. *Derman* discloses a wardrobe or cabinet. Just as a garment hook is not related to a hose clamp, a wardrobe is not related to a prefabricated house. That is, the Examiner has not demonstrated why one skilled in the art of building prefabricated houses would turn to a reference disclosing a wardrobe to create an improved modular home. As such, the *Derman* reference is non-analogous art.

With regard to the second point, the Examiner states that *Derman* discloses “a cuboid volume with cross members 35/27 and studs 22/19.” December 24, 2008 Final Office Action at pg. 5, (emphasis added). *Derman* discloses a wardrobe or cabinet. As set forth above, to those skilled in the art of building construction, a “stud” is a wall frame element typically spaced about 16 inches or 24 inches apart and below a covering. *Derman* does not disclose any type of wall frame elements including “studs.”

With regard to the third point, the entire rejection of Claims 5-6 is set forth in four sentences. Sentence one recites that *Kump* fails to disclose cross members removably coupled to studs; sentences two and three note that *Derman* discloses cross members removably coupled to studs (a point the Appellant does not accept, see above); and finally sentence four reads, “It would have been obvious to one of ordinary skill in the art to removably couple the studs to the cross members to allow for a greater degree in variation of size of the room modules as shown by *Derman*.” The final sentence is the only explanation for the proposed combination.

Appellant asserts that the single sentence is the exact type of conclusory sentence that *KSR International* and MPEP § 2142 state cannot, by itself, support a rejection under 35 U.S.C. § 103(a). By providing only a single sentence, the Examiner has failed to provide explicit findings (MPEP § 2141) and failed to provide the “key” support for a finding of obviousness (MPEP § 2143).

Accordingly, the rejection of Claims 5-6 and 14-15 under 35 U.S.C. § 103(a) is improper and should be reversed.

Claims 7-8, 16 and 19; Rejected under 35 U.S.C. § 103(a)

Claims 7-8, 16 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kump* (U.S. Patent No. 3,712,007) in view of *Donahue* (U.S. Patent No. 2,644,203) and further in view of *Prigmore et al.* (U.S. Patent No. 4,779,514). The deficiencies of *Kump* and *Donahue*, and the reasons they cannot be combined, are noted above. *Prigmore* discloses a building constructed of pre-made panels that are coupled together by hinges. There are at least two problems with the use of *Kump* in view of *Prigmore* as combined prior art: (1) *Prigmore* fails to disclose the elements cited by the Examiner; and (2) the rejection is not properly supported.

Each side panel of *Prigmore* is disclosed as being pivotally coupled to the roof structure by a hinge element and coupled to a floor element by a plurality of latches. Such a configuration allows the structure to be moved in a collapsed form. The Examiner states that *Prigmore* discloses both “passive space” and “fixed space.” Appellant disagrees. These phrases are defined phrases in the present application. At page 8, lines 19-31, the specification states:

Fixed space is rigid and does not include foldable panels 18. Fixed space is typically any space that has functionality beyond providing volume. For example, the following would qualify as fixed space: closets, bathrooms, kitchens, storages, laundry rooms or house mechanical space, as well as corridors and stairs. Conversely, passive space is compressible space, i.e., that which may be folded. Typically, the passive space is not laden with fixtures, etc.

Id.

With regard to the first point noted above, the “fixed space” of *Prigmore* identified by the Examiner is an empty roof area. That is, *Prigmore* does not disclose a “functionality beyond providing volume.” Thus, although not shown as being collapsible in *Prigmore*, such a space is still a “space ... which may be folded.” Any generally empty space, such as a hollow roof, could be folded; the mere fact that *Prigmore* fails to disclose such a collapsible structure does not change that nature of the space. Additionally, the present application states that the “core modules” have both fixed and passive space. A “core module” is an “indoor room” (page 8, line 13) and not an “outdoor structure” (page 8, lines 17-18). A roof, such as the *Prigmore* roof, is not an “indoor room” but is an “outdoor structure.”

With regard to the second point noted above, the Examiner has, again, merely recited a list of elements the Examiner contends are disclosed by the references, then states that because the elements were known individually, it would be obvious to combine them. Appellant asserts

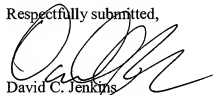
that the single conclusory sentence is the exact type of sentence that *KSR International* and MPEP § 2142 state cannot, by itself, support a rejection under 35 U.S.C. § 103(a). By providing only a single sentence, the Examiner has failed to provide explicit findings (MPEP § 2141) and failed to provide the “key” support for a finding of obviousness (MPEP § 2143).

Accordingly, the rejection of Claims 7-8, 16, and 19 under 35 U.S.C. § 103(a) is improper and should be reversed.

Conclusion

It is submitted that Claims 1, 2, 4-11 and 13-19 are patentable over the prior art. Therefore, it is requested that the Board reverse the Examiner's rejections of Claims 1, 2, 4-11 and 13-19 and remand the application to the Examiner for the issuance of a Notice of Allowance.

Respectfully submitted,



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Attorney for Appellant

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APPENDIX 1 - CLAIM APPENDIX

1. A prefabricated house comprising:
two or more modules, each module having a frame, said frame having a plurality of studs;
said module frames having one or more multiframe openings;
each said multiframe opening incorporating two studs from said module frame plurality of studs and having a plurality of medial cross-members; and
said two or more modules structured to be joined at one of said one or more multiframe openings.
2. The prefabricated house of claim 1 wherein:
said multi-frame openings are enclosed within a covering over said module frame;
and said multi-frame openings are structured to be converted into openings.
4. The prefabricated house of claim 1 wherein each cross-member in said plurality of cross-members is coupled to said studs in a manner sufficient to support any additional components selected from the group including: doors, windows, fireplaces or dormers.
5. The prefabricated house of claim 4 wherein each cross-member in said plurality of cross-members is removably coupled to said studs.
6. The prefabricated house of claim 3 wherein each cross-member in said plurality of cross-members is removably coupled to said studs.
7. The prefabricated house of claim 1 wherein said modules include one or more foldable panels.

8. The prefabricated house of claim 7 wherein:
at least one of said two or more modules is a core module having a fixed space portion and a passive space portion;
said fixed space portion having non-foldable walls;
said passive space portion having said foldable panels;
said foldable panels movable from a first, closed position to second open position; and
wherein said core module has dimensions of less than about 66 feet, by 10 feet, by 12 feet when said foldable panels are in said first position.

9. The prefabricated house of claim 8 wherein said multi-frame openings are structured to be converted into an opening selected from the group including: doors, windows, fireplaces or dormers.

10. The prefabricated house of claim 8 wherein said modules may be joined at said multi-frame openings with said modules disposed in more than one configuration relative to each other.

11. The prefabricated house of claim 10 wherein:
said multi-frame openings are enclosed within a covering over said module frame;
and said multi-frame openings are structured to be converted into openings.

13. The prefabricated house of claim 11 wherein each cross-member in said plurality of cross-members is coupled to said studs in a manner sufficient to support any additional components selected from the group including: doors, windows, fireplaces or dormers.

14. The prefabricated house of claim 13 wherein each cross-member in said plurality of cross-members is removably coupled to said studs.

15. The prefabricated house of claim 11 wherein each cross-member in said plurality of cross-members is removably coupled to said studs.

16. The prefabricated house of claim 10 wherein each said module includes substantially finished trim.

17. The prefabricated house of claim 1 wherein said modules may be joined at said multi-frame openings with said modules disposed in more than one configuration relative to each other.

18. The prefabricated house of claim 1 wherein each said module includes substantially finished trim.

19. The prefabricated house of claim 1 wherein:
at least one of said two or more modules is a core module having a fixed space portion and a passive space portion;

said passive space portion structured to move from a first, closed position to second open position; and

wherein said core module has dimensions of less than about 66 feet, by 10 feet, by 12 feet when said passive space portion is in said first position.

APPENDIX 2 - EVIDENCE APPENDIX

Exhibit A – definition of “frame”, *The Hancock Joist, Joist And Structural Glossary*, submitted on February 24, 2009, in response to the Final Office Action of December 24, 2008.

Exhibit B - definition of “frame”, Contractor Glossary of Terms, submitted on February 24, 2009, in response to the Final Office Action of December 24, 2008.

Exhibit C - definition of “frame”, Encarta, submitted on February 24, 2009, in response to the Final Office Action of December 24, 2008.

Exhibit D - definition of “frame”, Merriam-Webster Online Dictionary, submitted on February 24, 2009, in response to the Final Office Action of December 24, 2008.

Exhibit E - definition of “frame”, The American Heritage® Dictionary of the English Language: Fourth Edition, 2000, submitted on February 24, 2009, in response to the Final Office Action of December 24, 2008.

Exhibit F - definition of “stud”, Affidavit of Robert Delorenzo, submitted on September 17, 2008, in response to the Office Action of June 24, 2008.

Exhibit G - definition of “stud”, Guertin and Arnold, *Fine Homebuilding*, “Anatomy of a Stud-Framed Wall,” at <http://www.taunton.com/finhomebuilding/pages/h00023.asp>, submitted on September 17, 2008, in response to the Office Action of June 24, 2008.

Exhibit H - definition of “studs”, *Ask This Old House*, Stud Spacing, <http://www.thisoldhouse.com>, submitted on September 17, 2008, in response to the Office Action of June 24, 2008.

Exhibit I - definition of “studs”, *Ching, Building Construction Illustrated (3rd Ed.)*, 2001, page 5.03, submitted on September 17, 2008, in response to the Office Action of June 24, 2008.

Exhibit J - definition of “stud”, *The BOCA National Building Code*, 1999, submitted on September 17, 2008, in response to the Office Action of June 24, 2008.

Exhibit K - definition of “post”, Encarta, submitted on September 17, 2008, in response to the Office Action of June 24, 2008.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Jeanette E. Chapman

Group Art Unit: 3635

In re application of:

PAOLO TIRAMANI

Serial No.: 10/653,523

Filed: September 2, 2003

MODULAR PREFABRICATED HOUSE

Attorney Docket No. 286357-00004-1

AFFIDAVIT OF ROBERT DELORENZO

Commissioner for Patents
MAIL STOP AF
P.O. BOX 1450
Alexandria, VA 22313-1450

Dear Sir:

Robert Delorenzo hereby declares and states as follows:

1. I am a builder and a contractor with over 20 years of experience in the field of home construction. I have built, or been involved with the building of over 200 homes and/or other buildings. I have owned and operated my own construction business, Delorenzo Construction Corporation for over 15 years.

2. Those skilled in the art of construction, especially in the construction of frames made from wood, identify vertical members of a frame assembly, typically by one of two names; a "post" or a "stud."

3. In a typical frame assembly, a "post" is a load-bearing vertical member, typically located at corner of a wall. Two posts may support a "beam" which is a horizontal load-bearing member. On walls having an extended length, additional posts may be used. The additional posts are, typically, spaced more than two feet apart from a corner post. Posts typically have a greater cross sectional area than a stud.

4. A "stud" is a reduced load-bearing vertical member. Because a stud is a reduced load-bearing member, a stud must be located, typically, less than two feet apart. Studs are typically made from a plurality of wooden 2"-by-4"s. If the studs have an actual cross-sectional area of 2"x 4", that is a non-dressed 2"-by-4", the studs are normally spaced 24" apart. If the 2"-by-4" have been dressed, that is, surfaced with a planing machine, the 2"-by-4" actually has dimensions closer to 1.5" by 3.5". Dressed studs are typically spaced 16" apart. Studs forming a wall typically include a top plate and a bottom plate. That is, a 2"-by-4" extending over the top of, or underneath, the studs.

5. I have reviewed U.S. Patent No. 6,959,515 disclosing a modular building structure. The patent states that a room module includes a steel chassis defining a "cuboid volume." This means that the chassis has four vertical members, one located in each corner of the module. The patent further states that "cross bracing" by diagonal members is optional. Because the vertical members of the chassis are load-bearing members, the vertical members would be identified as "posts" by those skilled in the art. Further, because the patent does not disclose additional vertical supports, whether load-bearing or not, between the corner posts, this patent fails to disclose any "studs" as that word is understood in the art.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

10.3.06
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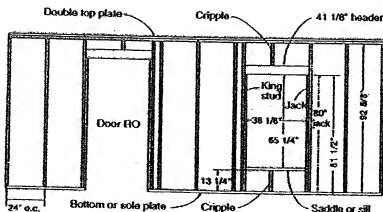
Anatomy of a Stud-Framed Wall

Proper framing for bearing and nonbearing walls

by Michael Guertin and Rick Arnold

Wall plates

A wall is a collection of studs (usually sized 2x4 or 2x6) equally spaced (usually 16 in. or 24 in. on center) and sandwiched between top and bottom plates. The top plate can be either single or double. Double plating is most common on load-bearing walls unless the roof rafters or trusses and floor joists stack directly over the studs in the wall, then a single top plate can be used.



Load-bearing wall

Headers

Large openings in the wall are made for windows and doors. When the opening is greater in width than the stud spacing -- and most windows are wider than 24 in. -- then a header must be inserted to carry the load of the interrupted stud(s). A header is a simple beam sized to support the load above the opening it spans.

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EXHIBIT B

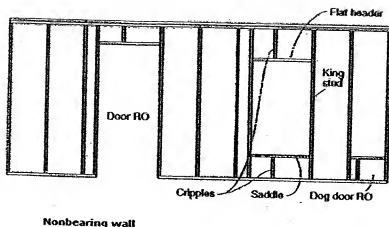
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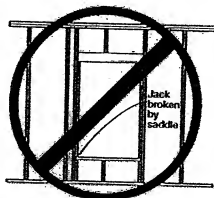
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HOUSE PLANS



Jack studs and king studs

The header is supported by a jack stud at each end. Jacks, sometimes called trimmers, fit under each end of a header, and they transfer the load that the header carries down to the bottom plate and the framing beneath. Nailed to the jacks are full-height studs called king studs; they support the assembly between the plates. Sometimes jacks must be doubled on wide openings so there's enough supporting surface for the header to bear on. Jacks can be replaced with a steel header hanger attached to the king stud.




Avoid this practice.

Saddles and cripples

A saddle (also called a sill) forms the bottom of a window opening. It's a piece of 2x stock laid flat and nailed between the jacks. Cripples are short pieces of 2x stock that run underneath the saddle. And, depending on a header's height, cripples can run from the header to the plate. Cripples are located at the points where a common stud would have been located had it not been interrupted by the opening.

Mike Guertin and Rick Arnold are professional builders in Rhode Island with 20 years' experience building custom homes. In addition to being contributing editors for *Fine Homebuilding* magazine, they have written numerous articles on homebuilding, and they conduct regular seminars for builders.

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Q: My house was built in 1950, and its exterior walls are made of cement block. When I removed some interior walls while renovating the bedroom, I noticed that the studs were spaced 24 inches on center. When I install new walls, should I keep that spacing? I plan to cover them with drywall.

— Brad, East Peoria, IL

A: Tom Silva replies: Codes generally allow 24-inch on-center spacing for studs in interior nonbearing walls, and under certain circumstances even for load-bearing walls. But I don't see why you'd want to do it, even if you can. You don't save much money in materials or much time in installation, and the finished wall is likely to flex if you lean on it. I build interior walls with 2x4 studs spaced 16 inches on center and cover them with at least ½-inch-thick drywall. They're stiffer and more solid-feeling than anything built with 24-inch spacing.

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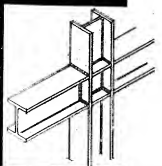
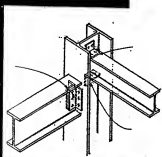
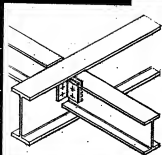
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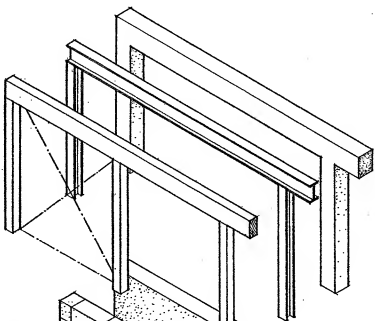


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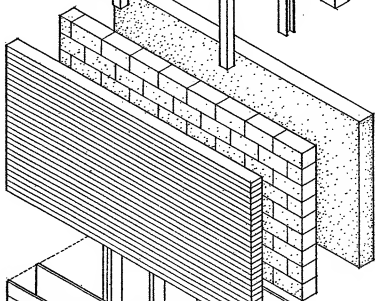
Structural Frames

- Concrete frames are typically rigid frames and qualify as noncombustible, fire-resistive construction.
- Noncombustible steel frames may utilize moment connections and require fireproofing to qualify as fire-resistive construction.
- Timber frames require diagonal bracing or shear planes for lateral stability and may qualify as heavy timber construction if used with noncombustible, fire-resistive exterior walls and if the members meet the minimum size requirements specified in the building code.
- Steel and concrete frames are able to span greater distances and carry heavier loads than timber structures.
- Structural frames can support and accept a variety of nonbearing or curtain wall systems.
- The detailing of connections is critical for structural and visual reasons when the frame is left exposed.



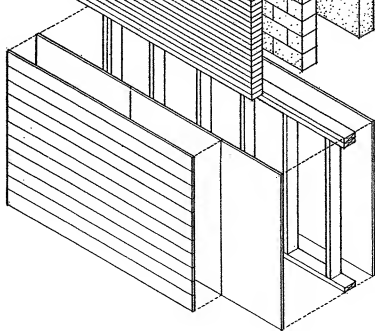
Concrete and Masonry Bearing Walls

- Concrete and masonry walls qualify as noncombustible construction and rely on their mass for their load-carrying capability.
- While strong in compression, concrete and masonry require reinforcing to handle tensile stresses.
- Height-to-width ratio, provisions for lateral stability, and proper placement of expansion joints are critical factors in wall design and construction.
- Wall surfaces may be left exposed.



Metal and Wood Stud Walls

- Studs of cold-formed metal or wood are normally spaced @ 16" or 24" (406 or 610) o.c.; this spacing is related to the width and length of common sheathing materials.
- Studs carry vertical loads while sheathing or diagonal bracing stiffens the plane of the wall.
- Cavities in the wall frame can accommodate thermal insulation, vapor retarders, and mechanical distribution and outlets of mechanical and electrical services.
- Stud framing can accept a variety of interior and exterior wall finishes; some finishes require a nail-base sheathing.
- The finish materials determine the fire-resistance rating of the wall assembly.
- Stud wall frames may be assembled on site or panelized off site.
- Stud walls are flexible in form due to the workability of relatively small pieces and the various means of fastening available.



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2305.5 Nonloadbearing walls: Studs in nonloadbearing walls and partitions shall not be spaced more than 48 inches (1219 mm) o.c., and are permitted to be erected with the long dimension parallel to the wall, unless otherwise approved as an integrated assembly by testing. A single top plate shall be prohibited except where such plate is installed in accordance with Section 2305.4.2.

2305.5.1 Notching and boring: Notches in studs shall not exceed 40 percent of the stud depth. Bored holes shall not exceed 60 percent of the stud depth and shall not be closer than $\frac{3}{4}$ inches (15 mm) to the edge. Notches and holes shall not occur in the same cross-section.

2305.6 Support and anchorage: Support and anchorage of members on girders, walls and beams shall conform to Sections 2305.6.1 through 2305.6.3.

2305.6.1 Support and anchorage on girders: All members framing into girders shall be anchored or tied to secure continuity. The ends of all wood beams that rest on girders shall bear not less than 4 inches (102 mm) or shall be supported in approved metal stirrups, hangers or on wood clips or ribbon strips. Beams framing from opposite sides shall either lap at least 6 inches (152 mm) and be bolted or spiked together or, where framed end-to-end, the beams shall be secured together by approved ties, straps, dogs, plates or sheathing.

2305.6.2 Support and anchorage on walls or beams: Except where supported on a 1×4 ribbon strip and nailed to the adjoining stud, joists shall bear on walls or beams of wood or steel not less than $1\frac{1}{2}$ inches (38 mm) or shall be supported by metal stirrups, hangers or a nominal 2-inch wood ledger strip. The minimum concrete or masonry support shall be 3 inches (76 mm). Joists framing over beams from opposite sides shall either lap at least 3 inches (76 mm) and be securely fastened together or, where framed end-to-end, the joists shall be secured together by approved ties, straps, dogs, plates or sheathing.

2305.6.3 Girder supports: Wall plate boxes of the self-releasing type, or approved hangers, shall be provided where beams and girders are supported by concrete or masonry. An air space of $\frac{1}{2}$ inch (13 mm) shall be provided at the top, end and sides of the member unless approved naturally durable or preservative-treated wood in accordance with Section 2311.0 is installed. Wood beams and girders supported by walls required to have a fire-resistance rating of 2 hours or more shall have not less than 4 inches (102 mm) of solid concrete or solid masonry between their ends and the outside face of the wall and between adjacent beams.

2305.7 Wind bracing: Structural members and connections that resist wind pressures shall be designed for the wind loads as required by Section 1609.0.

2305.7.1 Sheathing: Bracing sheathing shall be applied with all edges supported.

2305.7.2 Design: Members or connections shall be permitted to be designed in accordance with Section 2303.1.3 for wind speeds shown in Figure 1609.3.

2305.8 Seismic bracing: Where structural analysis of the seismic force-resisting system is not provided, buildings shall meet

the provisions of this section and shall have roof and exterior wall dead loads less than or equal to 15 psf (718 Pa) and floor dead loads less than or equal to 10 psf (479 Pa).

Exceptions

1. Detached one- and two-family dwellings located in seismic map areas having an effective peak velocity-related acceleration (A_v) value less than 0.15.
2. The exterior wall weight limitation shall not apply to masonry veneer attached to one-story Seismic Performance Category B buildings.

2305.8.1 Wall bracing required: All exterior walls and required interior-braced walls shall be braced by one of the types of sheathing prescribed in Table 2305.8.1 for each 25 lineal feet (7620 mm) of exterior wall or required interior-braced wall line. The required length of sheathing shall be distributed along the length of the braced wall with sheathing placed at each end of the exterior wall or interior-braced wall. A minimum 4-foot (1219 mm) length of sheathing shall be located at the end of each braced wall. The construction of braced walls shall comply with the requirements of Section 2305.9.

2305.8.2 Double-sheathed walls: Where braced walls are sheathed on both sides with identical sheathing, the required length of sheathing in Table 2305.8.1 is permitted to be taken as one-half the tabular length. Where different sheathing materials are used on either side of a wall, the required length of sheathing in Table 2305.8.1 is permitted to be taken as one-half of the tabular length for the material requiring the greater length. Double-sheathed walls shall have a minimum length of 4 feet (1219 mm).

Table 2305.8
WALL SPACING AND HEIGHT LIMITATIONS
FOR WOOD FRAME CONSTRUCTION

Seismic Performance Category	Maximum distance between interior-braced walls (feet) ^a	Maximum stories (height) permitted ^b
A	See Section 1610.1, Exception #3	
B	35	3 (40 feet)
C	25	2 (30 feet)
D ^a	25	1 (20 feet) ^b
E	Engineering analysis required, see Section 2306.0	


Note a. Applies only to Seismic Hazard Exposure Group I; engineering analysis required for Seismic Hazard Exposure Group II.

Note b. Detached one- and two-family dwellings shall not exceed two stories or 30 feet in height.

Note c. 1 foot = 304.8 mm.

2305.8.3 Stud walls: Stud walls that are less than the full height of the story shall be braced as required for exterior walls or interior-braced walls and shall be considered an additional story.

2305.8.4 Sheathing installation: Sheathing shall be installed in accordance with the provisions of Table 2305.13 where acting as wall bracing. To be considered effective as bracing,

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post-bellum

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post [pōst]

noun (*plural* posts)

Definition:

- upright pole:** a pole of wood or metal fixed in the ground in an upright position, serving as a support, marker, or place for attaching things
- CONSTRUCTION upright frame part:** a vertical piece in a building frame that supports a beam
- HORSE RACING racecourse indicator:** either of two upright poles marking the starting point and finishing line on a racecourse
- furniture support:** one of the upright supports of a piece of furniture such as a chair or a four-poster bed
- SPORTS (informal)**
Same as goalpost
- JEWELLERY earring part:** a metal stem on a pierced earring that passes through the ear and fits into a cap at the back
- ONLINE**
Same as posting¹ (sense 1)

transitive verb (*past and past participle*

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post-ed, *present participle* post-ing, *3rd person present singular* posts)

Definition:

1. **display something:** to display something such as an announcement, name, or result in a public place
 2. **publish something electronically:** to make text appear online or at an Internet location
 3. **U.S. erect signs forbidding something:** to put up signs around a property warning against trespassing or engaging in a forbidden activity
 4. **U.S. denounce publicly:** to denounce somebody by displaying damaging information publicly (*dated*)
 5. **LEISURE score points:** to score something, e.g. points, in a game or sport
 - *posted a win in his first game of the season*
 6. **give notice of marriage:** to announce a forthcoming marriage in a church
 - *post the banns*
 7. **NAUTICAL name ship:** to publish the name of a ship presumed lost or sunk
- [Pre-12th century. < Latin *postis* "something that stands in front" < Indo-European, "to stand"]



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Footing

A concrete pad or mat located under a column, wall, or other structural member that distributes loads from that member into the supporting soil.

Foundation

The substructure which supports a building or other structure.

Frame

A structural framing system consisting of members joined together with moment or rigid connections which maintain their original angular relationship under load without the need for bracing in its plane. See Rigid Frame.

Framed Opening

Headers or other structural members which surround an opening in a roof which can be for mechanical units, straiwells, etc.

Framing Plan

Floor or roof plans that identify individual marks, components, and accessories furnished by the joist manufacturers in a detailed mannner to permit proper erection of the joist and joist girders. See Erection Plan and Placing Plan.

Free-Body Diagram

A diagram on which all of the external forces acting on a body are shown at their respective points of application.

Frequency

A measure of floor vibration. It is the speed of the oscillations of vibration and is expressed in cycles per secong or Hz (Hertz).

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[G]**G-Type Joist Girder**

A type of Joist Girder where joists are located at panel points where diagonal webs intersect the top chord only.

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<u>Term</u>	<u>Definition</u>
Foyer.	An anteroom, lobby, entrance hallway, or vestibule.
FPL.	Forest Products Laboratory.
Fraction.	1. A numerical quantity that is not a whole number, as in 1/2 or 0.5; a number expressed as one number divided by another, as in 2/3 or 4/5; the upper number is the numerator and the bottom number is the denominator. 2. A portion of a mixture separated by distillation.
Fracture.	1. A break, usually resulting in actual separation of the material; in structures, the characteristic result of tension failure. 2. See Crack, 1.
Fracture.	see Crack.
Frame High.	To construct the brickwork up to the top of the door or window frame; the lintel is then laid across the opening and rests upon the brickwork on each side of the frame.
Frame, Balloon.	see Balloon Frame.
Frame, Braced.	see Braced Frame.
Frame, Door.	see Door Frame.
Frame, Ductile Moment Resisting Space.	see Ductile Moment Resisting Space Frame.
Frame, Moment Resisting.	see Moment Resisting Frame.
Frame, Platform.	see Platform Frame.

EXHIBIT B

Frame.	1. An enclosing border as in a picture frame. 2. The surrounding or enclosing woodwork, as around windows or doors. 3. The skeleton of a building; that is, the rough structure of a building, including interior and exterior walls, floor, roof, and ceilings. 4. To form together or construct large assemblies from smaller components. 5. A structural system consisting of relatively long, prismatic members fastened together; a rigid frame is one in which the joints can transmit moments as well as forces and which therefore does not require a braced frame for rigidity.
Framed Connection.	1. One that is capable of resisting moments. 2. A shear connection between steel members made by means of steel angles or plates connecting to the web of the beam or girder.
Framer.	1. A carpenter who constructs wood framing. 2. A carpentry contractor. 3. One who frames pictures and makes their frames.
Frames.	Racks at the back of a Jacquard loom, each holding a different color of pile yarn; in Wilton carpets, 2 to 6 frames may be used and the number is a measure of quality as well as an indication of the number of colors in the pattern, unless some of the yarns are buried in the backing.
Framing Lumber.	Wood members of framing systems which are manufactured by sawing, resawing, passing lengthwise through standard planing machine, crosscutting to length, and matching, but without further manufacturing.
Framing Member.	The stud, plate, joist, or furring component to which the exterior and interior surfacing materials are attached; normally made of wood or metal.
Framing, Ceiling.	see Ceiling Framing.
Framing, Door.	see Door Framing.
Framing, Roof.	see Roof Framing.
Framing, Timber.	see Timber Framing.
Framing, Wall.	see Wall Framing.
Framing.	The rough wooden structural skeleton of a building, including interior and exterior walls, floor, roof, and ceilings.
Franchise Tax Board.	In California, a department of state government that collects taxes from individuals and businesses.
Fraud.	A false statement of fact that is designed to deceive.
Free and Clear.	Real property that has no liens or encumbrances.
Free Body Diagram.	A diagram, or drawing, in which one element of structure is isolated from its surroundings, and the effect of its surroundings is shown only as forces; see Vector, 1.
Free Form.	A floor area, usually in a department store or salon, not bounded by walls and of nonrectangular shape; sometimes called Form-Fit Area.

Free Water.

All water contained by gypsum board, concrete, mortar, or plaster in excess of that chemically held as water of crystallization;

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frame

frame [fraym]

noun (*plural* frames)

Definition:

1. supporting structure: an underlying or supporting structure that consists of solid parts such as beams or struts with spaces between them and has something built around or on top of it

- a bike with a steel frame

2. surrounding structure: a structure that surrounds or encloses a particular space

- a picture frame
- a door frame

3. OPHTHALMOLOGY lens-holding part of eyeglasses: the part of a pair of eyeglasses that holds the lenses and fits around the wearer's face

4. hollow shape for needlecraft and painting: an open structure across which a piece of material can be stretched to be painted or embroidered, or across which threads can be stretched for weaving

5. context: the general background or

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context against or within which something takes place

- *the story's historical frame*

6. **HUMAN BODY:** somebody's body, especially with reference to its size and shape

- *He eased his enormous frame into the chair.*

7. **MOVIES PHOTOGRAPH** picture on strip of film: one of the individual pictures that make up a strip of movie film, or a single exposure on a strip of photographic negative or slide images

8. **MOVIES TV** visible part of filmed action: in film, video, or TV, the particular area of action that is captured by the camera and forms the rectangular image that appears on the screen

- *characters moving out of the frame to the left*

9. **PHOTOGRAPH** image border: the border or set of borders of a projected image

10. **PUBLISHING** single picture in comic strip: one of the individual pictures that make up a comic strip

11. **GARDENING**

Same as cold frame

12. **LAWN BOWLING** round of bowling: one of the ten rounds in a bowling game

13. **U.K. CUE GAMES**

Same as rack¹n (sense 7) (sense 8) (sense 9)

14. **ONLINE** area of computer screen: a rectangular area on a computer screen, containing all or a portion of a webpage. More than one frame can be displayed concurrently.

15. **COMPUT** single cycle of pulses: a single cycle of pulses in a string of repeated pulses

16. **COMPUT** data packet: a variable-length data packet preceded and followed by addressing and control information that is transmitted between network points as a unit. Some control frames contain no data.

17. **CRIME** (*slang*)



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Same as frame-up (sense 1)

plural noun frames

Definition:

1. OPHTHALMOLOGY

Same as frame (sense 3)

2. ONLINE web browser feature: a web browser feature that segments the window being displayed, allowing the concurrent display of two or more pages on the same screen

transitive verb (*past and past participle* framed, *present participle* fram-ing, *3rd person present singular* frames)

Definition:

1. put something in frame: to mount a picture in a frame

2. form surrounding framework for something: to form a surrounding border or framework, especially a decorative or contrasting one, around something (*often passive*)

- *a delicate face framed by abundant black hair*

3. construct idea or statement: to construct or compose something that is to be written or spoken

- *She framed her words carefully.*

4. express something in particular way: to express something in a particular type of language

- *framed the argument in legal terms*

5. mouth words: to mouth words silently

6. cause somebody to appear guilty: to make an innocent person appear guilty, e.g. by forging incriminating evidence (*slang*)

7. arrange result of something in advance: to use dishonest or illegal methods to arrange the result of a contest in advance, e.g. by paying a player to lose deliberately (*slang*)

adjective

Definition:

CONSTRUCTION ARCHITECTURE **with wooden framework:** constructed on a framework of wooden beams, then covered with boards or shingles

- *a white frame house with black shutters*

[Old English *framian* "make progress, be helpful, prepare, shape" < *fram* (see from)]

- *frame-a·ble adjective*


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frame

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1 frame (verb)

2 frame (noun)

3 frame (adjective)

A-frame

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Steele's Super Bowl Gear
Pittsburgh Steele Super Bowl XLIII Champions Merchandise & Apparel.
FootballFanatics.com/Steele's_Champ

Main Entry: *frame*
Function: *noun*
Date: 14th century

1 a : something composed of parts fitted together and united b : the physical makeup of an animal and especially a human body : **PHYSIQUE, FIGURE**
2 a : the underlying constructional system or structure that gives shape or strength (as to a building) b : a frame dwelling
3 *obsolete* : the act or manner of framing
4 a : machine built upon or within a **framework** <a spinning *frame*> b : an open case or structure made for admitting, enclosing, or supporting something <a window *frame*> c (1) : a part of a pair of glasses that holds one of the lenses (2) *plural* : that part of a pair of glasses other than the lenses d : a structural unit in an automobile chassis supported on the axles and supporting the rest of the chassis and the body
5 a : an enclosing border b : the matter or area enclosed in such a border: as (1) : one of the squares in which scores for each round are recorded (as in bowling) ; *also* : a round in bowling (2) : an individual drawing in a comic strip usually enclosed by a bordering line (3) : one picture of the series on a length of film (4) : a complete image for display (as on a television set) e : an inning in baseball d (1) : **FRAMEWORK** 1a (2) : **CONTEXT, FRAME OF REFERENCE** e : an event that forms the background for the action of a novel or play
6 : **FRAME-UP**
[FRAME ILLUSTRATION]

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EXHIBIT D

Pronunciation Symbols

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The American Heritage® Dictionary of the English Language: Fourth Edition. 2000.

frame

PRONUNCIATION: ˈfrām

VERB: Inflected forms: **framed, fram-ing, frames**

TRANSITIVE VERB: 1. To build by putting together the structural parts of; construct: *frame a house*. 2. To conceive or design: *framed an alternate proposal*. 3. To arrange or adjust for a purpose: *The question was framed to draw only one answer*. 4a. To put into words; formulate: *frame a reply*. b. To form (words) silently with the lips. 5. To enclose in or as if in a frame: *frame a painting*. 6. *Informal* a. To make up evidence or contrive events so as to incriminate (a person) falsely. b. To prearrange (a contest) so as to ensure a desired fraudulent outcome; fix: *frame a prizefight*.

INTRANSITIVE VERB: 1. *Archaic* To go; proceed. 2. *Obsolete* To manage; contrive.

NOUN: 1. Something composed of parts fitted and joined together. 2. A structure that gives shape or support: *the frame of a house*. 3a. An open structure or rim for encasing, holding, or bordering: *a window frame; the frame of a mirror*. b. A closed, often rectangular border of drawn or printed lines. 4. A pair of eyeglasses, excluding the lenses. Often used in the plural: *had new lenses fitted into an old pair of frames*. 5. The structure of a human or animal body; physique: *a worker's sturdy frame*. 6. A cold frame. 7. A general structure or system: *the frame of government*. 8. A general state or condition: *The news put me into a better frame of mind*. 9. A frame of reference. 10. *Sports & Games* a. A round or period of play in some games, such as bowling and billiards. b. *Baseball* An inning. 11. A single picture on a roll of movie film or videotape. 12. The total area of a complete picture in television broadcasting. 13. An individual drawing within a comic strip. 14. *Computer Science* a. A feature that divides a browser's window into separate segments that can be scrolled independently of each other. b. A single step in a sequence of programmed instructions. 15. *Informal* A frame-up. 16. *Obsolete* Shape; form.

ETYMOLOGY: Middle English *framen*, from Old English *framian*, to further, from *fram*, forward. See *from*.

weight loss

cabbage

soup diet

meal plan

weight loss

tie

low carb diet

diet plan

EXHIBIT E

APPENDIX 3 - RELATED PROCEEDINGS APPENDIX

None.